

Claims

What is claimed is:

1. A medical lead, comprising:
 - an electrically insulative tubular membrane having an inner surface and an outer surface;
 - a resilient spring element associated with the insulative membrane; and
 - at least one electrode associated with the outer surface of the insulative membrane.
2. The medical lead of claim 1, wherein the insulative membrane insulative membrane has a normally non-cylindrical shape.
3. The medical lead of claim 1, wherein the insulative membrane has a first stiffness, and the spring layer has a second stiffness greater than the first stiffness.
4. The medical lead of claim 1, wherein the insulative membrane is flaccid.
5. The medical lead of claim 1, wherein the spring element is a discrete element.
6. The medical lead of claim 1, wherein the spring element is a mesh or braid.
7. The medical lead of claim 1, wherein the spring element is configured to expand the insulative membrane.
8. The medical lead of claim 1, wherein the resilient spring element is associated with the outer surface of the insulative membrane.

9. The medical lead of claim 1, wherein the resilient spring element is associated with the inner surface of the insulative membrane.

10. The medical lead of claim 1, wherein the insulative membrane, spring element, and at least one electrode form a body that is configured to inhibit tissue 5 growth.

11. The medical lead of claim 1, wherein the insulative membrane, spring element, and at least one electrode form a body that is configured to be collapsed into a compact form for percutaneous delivery into a patient.

12. The medical lead of claim 1, wherein the insulative membrane, spring 10 element, and at least one electrode form an expanded body that is sized to fit within the epidural space of a patient.

13. A method of performing a medical procedure on a patient, comprising: placing the medical lead of claim 1 into a collapsed state by applying a compressive force to the medical lead;

15 percutaneously delivering the collapsed medical lead into the patient adjacent tissue to be treated; and

placing the medical lead into an expanded state by releasing the compressive force, whereby the resilient spring element facilitates expansion of the medical lead.

14. The method of claim 13, further comprising stimulating the tissue with 20 the medical lead.

15. The method of claim 13, wherein the tissue is spinal cord tissue.

16. A medical lead, comprising:
a resilient tubular structure having a normally non-circular cross-sectional shape; and

25 at least one electrode associated with the tubular structure.

17. The medical lead of claim 16, wherein the tubular structure comprises a discrete resilient spring element.

18. The medical lead of claim 16, wherein the tubular structure comprises a resilient mesh or braid.

5 19. The medical lead of claim 16, wherein the tubular structure is configured to inhibit tissue growth.

20. The medical lead of claim 16, wherein the tubular structure is configured to be collapsed into a compact form for percutaneous delivery into a patient.

10 21. The medical lead of claim 16, wherein the tubular structure is sized to fit within the epidural space of a patient.

22. The medical lead of claim 16, wherein the non-circular shape is a rectangle.

15 23. The medical lead of claim 16, wherein the non-circular shape is an oval.

24. The medical lead of claim 16, wherein the non-circular shape is a crescent-shaped.

25. A method of performing a medical procedure on a patient, comprising:
20 placing the medical lead of claim 16 into a collapsed state by applying an external force to the medical lead;
percutaneously delivering the collapsed medical lead into the patient adjacent tissue to be treated; and
placing the medical lead into an expanded state by releasing the external force.

26. The method of claim 25, further comprising stimulating the tissue with the medical lead.

27. The method of claim 26, wherein the tissue is spinal cord tissue.